

# CMCC Donor Update

**THANK YOU FOR YOUR ONGOING SUPPORT.**

**Our latest projects are summarized by research area:**

## **LIFE SCIENCES – THE PHYSIOLOGICAL AFFECT OF CHIROPRACTIC ADJUSTMENTS**

While waiting to restart recruiting patients on campus, our team is continuing to conduct laboratory investigations on the role of inflammatory cytokines in low back pain, and how levels of these substances respond to manipulation. We are taking this to a deeper level this year by looking also at responses in the nucleic acids which code for inflammatory responses. This work is also being extended in another direction, through a recent agreement with the Toronto Rehabilitation Institute, and will include measurements of changes in brain function in response to treatment. No longer satisfied with just knowing that spinal manipulation works, our goal is to get a comprehensive vision of the neurobiological underpinnings of chiropractic adjustments.

Also ongoing in the lab is a study of how neuronal cells respond to TENS. The first study showed how TENS stimulation activates fibroblasts: by opening membrane channels that admit calcium to initiate biochemical cascades. This work is now being repeated in dorsal root ganglion cells which we are cultivating in our laboratory on campus.

## **New Project**

New to our laboratory is a foray into 'big data' in collaboration with the Toronto Rehabilitation Institute to examine how patients describe their own conditions. We are looking at large collections of patient records for linguistic clues that will help clinicians distinguish between similar conditions such as myofascial pain syndrome and fibromyalgia. Also, in a culturally diverse country like Canada, we have the opportunity to explore how people with different cultural backgrounds experience and describe their health concerns, especially chronic pain syndromes.

## **MCMORLAND FAMILY RESEARCH CHAIR IN MECHANOBIOLOGY**

Two projects, led by CMCC Residents, are using a comprehensive dataset obtained from 266 varsity athletes at the University of Toronto.

1) The first project assessed the extent of a relationship between two supposed risk factors for anterior

cruciate ligament injury. More specifically, the relationship between generalised joint hypermobility and frontal knee plane movement during a drop vertical jump was assessed. Our analyses found that there was no relationship between the two risk factors. These findings may be partly confounded by the (in) validity of the Beighton Score that was used to assess generalised joint hypermobility.

2) Given the possibility noted above, the Chair is supervising a second resident project to evaluate the construct validity of the Beighton score as an indicator of generalised joint hypermobility. For this project, the association between Beighton Score and measurements of the sagittal plane passive range of motion at the shoulder and hip will be examined to evaluate validity. A strong association would indicate that the Beighton Score is a valid indicator of generalised joint hypermobility in varsity University athletes.

## New Project

A systematic review with the colleagues at the Memorial University of Newfoundland on a review of the reliability and validity of the flexion relaxation ratio as a biomarker for patients with nonspecific chronic low back pain. Briefly, the flexion relaxation ratio is derived from the observance of the flexion relaxation phenomenon, which is characterised by the sudden silencing of the spine's extensor muscles near the end range of motion in forward bending. Establishing the reliability and validity of this biomarker will enhance its potential for use in subsequent clinical studies with patients with nonspecific chronic low back pain.

## HEALTH POLICY AND SERVICES RESEARCH (Health Policy and Outcome Based Research)

We are currently in data collection and analysis mode for a number of projects and do not have any updates at this time. This is in conjunction with the other CMCC research areas.

## How your support is helping CMCC:

Your contributions have been instrumental for CMCC and our researchers to continue these important studies for the profession. In addition, CMCC is also raising funds to help students in financial need through a Student Bursary Fund. The CMCC Contingency Pandemic Fund has been created to help fund the purchase of PPE equipment and supplies. We are grateful for those of you who have made contributions to these funds. If you are able to help with these two initiatives, please let us know.

Thank you and please stay healthy and safe.

## To learn more about these projects, please contact:

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